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JC860 U.S. PTO

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UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))	Attorney Docket No.
	First Inventor or Application Identifier RIDHA RADHOVANE
	Title Auto Adjustment Video Projector
	Express Mail Label No.

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.	ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, DC 20231
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1. <input checked="" type="checkbox"/> * Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing) 2. <input checked="" type="checkbox"/> Specification [Total Pages 6] (preferred arrangement set forth below) - Descriptive title of the Invention - Cross References to Related Applications - Statement Regarding Fed sponsored R & D - Reference to Microfiche Appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings (if filed) - Detailed Description - Claim(s) - Abstract of the Disclosure 3. <input checked="" type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets 1] 4. Oath or Declaration [Total Pages 2] a. <input checked="" type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> Copy from a prior application (37 C.F.R. § 1.63(d)) (for continuation/divisional with Box 16 completed) i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b). * NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).	5. <input type="checkbox"/> Microfiche Computer Program (Appendix) 6. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) a. <input type="checkbox"/> Computer Readable Copy b. <input type="checkbox"/> Paper Copy (identical to computer copy) c. <input type="checkbox"/> Statement verifying identity of above copies ACCOMPANYING APPLICATION PARTS 7. <input type="checkbox"/> Assignment Papers (cover sheet & document(s)) 8. <input type="checkbox"/> 37 C.F.R. § 3.73(b) Statement of Power of Attorney (when there is an assignee) 9. <input type="checkbox"/> English Translation Document (if applicable) 10. <input type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 [Copies of IDS Citations] 11. <input type="checkbox"/> Preliminary Amendment 12. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) (Should be specifically itemized) 13. <input type="checkbox"/> * Small Entity Statement(s) [Statement filed in prior application, Status still proper and desired (PTO/SB/09-12)] 14. <input type="checkbox"/> Certified Copy of Priority Document(s) (if foreign priority is claimed) 15. <input type="checkbox"/> Other:
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16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:
☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No. _____
 Prior application information: Examiner _____ Group / Art Unit _____
For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS

☐ Customer Number or Bar Code Label _____ or ☒ Correspondence address below
 (Insert Customer No. or Attach bar code label here)

Name	RIDHA RADHOVANE				
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Country	USA	Telephone	+3610497231	Fax	-

Name (Print/Type)	RIDHA RADHOVANE	Registration No. (Attorney/Agent)	
Signature		Date	09/15/2000

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Patent fees are subject to annual revision.
Small Entity payments must be supported by a small entity statement,
otherwise large entity fees must be paid. See Forms PTO/SB/09-12.
See 37 C.F.R. §§ 1.27 and 1.28.

TOTAL AMOUNT OF PAYMENT (\$)
2134

Complete if Known

Application Number
Filing Date
First Named Inventor RIDHA RADHOVANE
Examiner Name
Group / Art Unit
Attorney Docket No.

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number

Deposit Account Name

☐ Charge Any Additional Fee Required
Under 37 CFR §§ 1.16 and 1.17

2. ☒ Payment Enclosed:

☒ Check ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Code	Small Entity Code	Fee (\$)	Fee (\$)	Fee Description	Fee Paid
101	690	201	345	Utility filing fee	690
106	310	206	155	Design filing fee	
107	480	207	240	Plant filing fee	
108	690	208	345	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) (\$)
690

2. EXTRA CLAIM FEES

Total Claims 7 - 20** = 0 X 78 = 0
Independent Claims 6 - 3** = 3 X 78 = 234
Multiple Dependent 1 = 0

**or number previously paid, if greater; For Reissues, see below

Large Entity Code	Small Entity Code	Fee (\$)	Fee (\$)	Fee Description	Fee Paid
103	18	203	9	Claims in excess of 20	
102	78	202	39	Independent claims in excess of 3	
104	260	204	130	Multiple dependent claim, if not paid	
109	78	209	39	** Reissue independent claims over original patent	
110	18	210	9	** Reissue claims in excess of 20 and over original patent	

SUBTOTAL (2) (\$)
234

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Code	Small Entity Code	Fee (\$)	Fee (\$)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	380	216	190	Extension for reply within second month	
117	870	217	435	Extension for reply within third month	
118	1,360	218	680	Extension for reply within fourth month	
128	1,850	228	925	Extension for reply within fifth month	
119	300	219	150	Notice of Appeal	
120	300	220	150	Filing a brief in support of an appeal	
121	260	221	130	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,210	241	605	Petition to revive - unintentional	
142	1,210	242	605	Utility issue fee (or reissue)	1,210
143	430	243	215	Design issue fee	
144	580	244	290	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	690	246	345	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	690	249	345	For each additional invention to be examined (37 CFR § 1.129(b))	

Other fee (specify) _____

Other fee (specify) _____

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)
1,210

SUBMITTED BY

Name (Print/Type)	<u>RIDHA RADHOVANE</u>	Registration No. (Attorney/Agent)		Telephone	<u>+33610497231</u>
Signature	<u>[Signature]</u>	Date	<u>09/15/2000</u>		

WARNING:

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APPLICANT

Name : Ridha Radhouane

Citizenship : Tunisian

Residence : 6415 Montego CT, San Jose 95120, CA-USA.

TITLE OF THE INVENTION

Auto Adjustment Video Projector (AAVP)

CROSS-REFERENCES TO RELATED APPLICATIONS

This application claims the benefits of provisional patent application No 60/158,060, filed October 7, 1999 entiteled "Picture to Picture Pointer, White Shadow and Auto Adjustment Projector".

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

"Not applicable"

REFERENCE TO A MICROFICHE APPENDIX

"Not applicable"

BACKGROUND OF THE INVENTION

1-Field of the Invention:

The present invention relates to video projector technologies.

2-Description of the related art:

Before using a video projector, it is necessary to set its focus, lightness, contrast and color saturation. These settings are made easy when the projection

room and screen are designed adequately. When the video projector and the screen are fixed, these adjustments are usually made once (at the installation).

With portable video projectors, projection conditions (room darkness, quality of the projection screen, projection distance,...) may vary from a presentation to another. The user has to adjust his device (the projector) in order to optimize the projection quality: he has to set the focus according to the available projection distance and the screen size and he has to adjust the brightness, the contrast and the color saturation depending on the projection room and screen.

The disadvantage of portable video projectors is the necessity of the setting phase prior to every new projection, when the projection conditions are changed.

BRIEF SUMMARY OF THE INVENTION

The principal of this invention is to make the video projector adjustments (focus, brightness, contrast and color saturation) automated. The video projector will be able to detect the projection conditions (distance to the screen, screen quality, room darkness,...) and to set the optimal setting parameters in order to allow the best quality of projection in those conditions.

The projection conditions will be quantified by the mean of a detecting device (CCD camera for example) integrated to the video projector.

BRIEF DESCRIPTION OF DRAWINGS

FIG.1 illustrates the principle of the Auto-Adjustment Video Projector: a capture device (CCD camera) allows to read the projection screen conditions in order to set automatically the projector.

DETAILED DESCRIPTION OF THE INVENTION

Video projector will be equipped with a video camera that shoots back the projection screen (during an initialization phase). The video image of the screen will be interpreted to extract the informations describing the screen conditions, the projection distance and the room conditions (darkness and noise light).

These condition informations will be used to set the different adjustment parameters (focus, brightness, contrast and color saturation):

Auto focus:

In addition to the capture system (CCD video camera), the video projector will be equipped by a motorized projection lens. The auto focus system (Hardware system integrated to the video projector) controls the motorized projection lens in order to obtain the best possible setting. A feed back loop composed by the capture device (CCD camera), the auto-focus Hardware and the motorized projection lens operates to converge to the optimal focus value.

The projector sends to the projection screen a sequence of test signals (lines, circles, or others...). The capture device (CCD camera) reads back these test signals and sends their video signal to the auto focus system to process them and command the motorized projection lens accordingly. The best focus setting is obtained when the projected image (of test signals) is closer to the received screen (received by the capture device : CCD camera).

Auto-Brightness:

The capture device in the video projector scans the projection screen and analyses its reflection characteristics in order to set the right brightness. Also the

ambient noise light (the room light) is measured and involved in the computation of the brightness parameters. The control of the brightness can be made pixel by pixel. Psycho visual considerations are involved in the algorithm.

Auto-contrast:

The captured screen informations are used to determine the optimum contrast value to apply so that the viewers get the finest quality of projection for any particular conditions. The control of the contrast can be made pixel by pixel.

Auto-color saturation:

The projection screen may not be always perfectly neutral: some parasite colored reflections (colored windows or door glass, reflection on colored wall...) can give the screen a tint of some color. The presentation will be affected and the screen stain will distress the audience. Although the human eyes restore this effect (after the beginning of the presentation), it is still worthwhile to recover the screen from the video projector by neutralizing the noise lights on it. This will release the viewer eyes and make them more comfortable. The control of the color saturation is made pixel by pixel.

CLAIMS

- 1- A method to make the video projector settings (focus, Brightness, contrast, color saturation and others ...) automated.
- 2- A method that uses a capture device (CCD camera for example) to set automatically the video projector adjustments.

3. A method, where a camera integrated to the video projector shoots back the video projection screen and where the video signal from this camera is used as well for any function other than the auto-adjustment function.

4. A method as recited in claims 1 and 2, to be used in portable or fix video projectors.

5. A method as recited in claims 1 and 2, to be used with all video projection technologies.

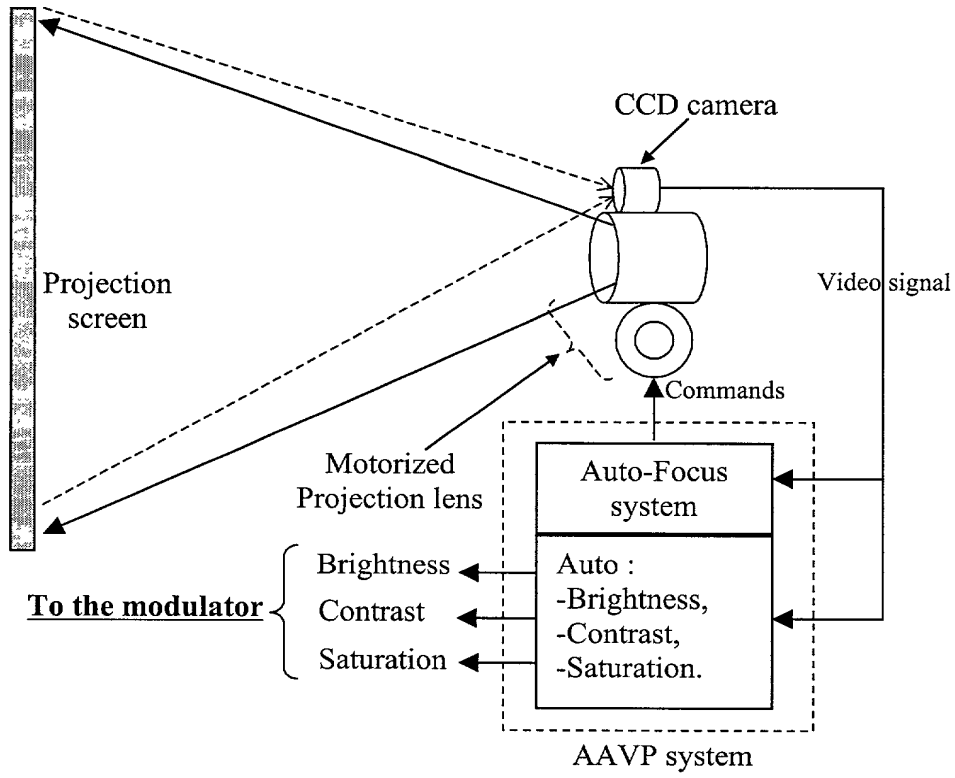
6. A method, where any sensor or detector (other than a video camera) integrated to the video projector is used to read back the projection screen or the space between the screen and th projector.


7. A method of scanning the projection screen or the space between the projector and the screen by using a video camera (or any sensor or detector) in order to process the projected video signal or to extract informations from the projection screen scene.

ABSTRACT OF THE DISCLOSURE

Ther present invention allows setting video projectors (Focus, Brightness, Contrast, Color saturation ...) automatically. It is based on the analysis of the projection screen conditions obtained from the screen image captured by an integrated video camera in the video projector.

FIG. 1



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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63) <input checked="" type="checkbox"/> Declaration Submitted with Initial Filing OR <input type="checkbox"/> Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)	Attorney Docket Number	
	First Named Inventor	RIDHA RADHOUANE
	COMPLETE IF KNOWN	
	Application Number	/
	Filing Date	
	Group Art Unit	
	Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Auto Adjustment Video Projector

the specification of which (Title of the Invention)
☒ is attached hereto
OR
☐ was filed on (MM/DD/YYYY) as United States Application Number or PCT International Application Number and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)
60/158,060	10/07/1999

☐ Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

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As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Customer Number

OR

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Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

Direct all correspondence to: ☐ Customer Number or Bar Code Label ☒ Correspondence address below

Name	RIDHA RADHOVANE				
Address	6415 MONTEGO CT				
Address					
City	SAN JOSE	State	CA	ZIP	95120
Country	USA	Telephone	+33610497231	Fax	-

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned inventor			
Given Name (first and middle [if any])		Family Name or Surname			
RIDHA		RADHOVANE			
Inventor's Signature				Date	09/15/2000
Residence: City	SAN JOSE	State	CA	Country	USA
				Citizenship	TUNISIAN
Post Office Address	6415 MONTEGO CT.				
Post Office Address					
City		State		ZIP	
				Country	

☐ Additional inventors are being named on the supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto